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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,071	12/29/2000	Stephen S. Selkirk	00-116-DSK	4518
7.	7590 04/05/2004		EXAMINER	
Wayne P. Bailey Storage Technology Corporation One StorageTek Drive			LANE, JOHN A	
			,	
			ART UNIT	PAPER NUMBER
Louisville, CO 80028-4309			2188	1
			DATE MAILED: 04/05/2004	1

Please find below and/or attached an Office communication concerning this application or proceeding.

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w ¹	Application No.	Applicant(s)					
	09/752,071	SELKIRK ET AL.					
Office Action Summary	Examiner	Art Unit					
	Jack A Lane	2188					
The MAILING DATE of this communication appeared for Reply	opears on the cover sheet with the	correspondence address					
A SHORTENED STATUTORY PERIOD FOR REPI THE MAILING DATE OF THIS COMMUNICATION - Extensions of time may be available under the provisions of 37 CFR 1 after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a report of the period for reply is specified above, the maximum statutory period for reply within the set or extended period for reply will, by statud Any reply received by the Office later than three months after the mailing earned patent term adjustment. See 37 CFR 1.704(b).	136(a). In no event, however, may a reply be ti- ply within the statutory minimum of thirty (30) da d will apply and will expire SIX (6) MONTHS from tte, cause the application to become ABANDONE	mely filed ys will be considered timely. n the mailing date of this communication. ED (35 U.S.C. § 133).					
Status							
1) Responsive to communication(s) filed on 09 i	March 2004.						
2a)⊠ This action is FINAL . 2b)□ Thi	is action is non-final.						
•	Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.						
Disposition of Claims							
4) Claim(s) 1-23 is/are pending in the application	n.						
4a) Of the above claim(s) is/are withdra							
5) Claim(s) is/are allowed.							
6)⊠ Claim(s) <u>1-23</u> is/are rejected.	<u></u>						
7) Claim(s) is/are objected to.		·					
8) Claim(s) are subject to restriction and/	or election requirement.						
Application Papers							
9)☐ The specification is objected to by the Examin							
10)☐ The drawing(s) filed on is/are: a)☐ ac	cepted or b) objected to by the	Examiner.					
Applicant may not request that any objection to the							
Replacement drawing sheet(s) including the corre							
11)☐ The oath or declaration is objected to by the E	Examiner. Note the attached Office	e Action or form PTO-152.					
Priority under 35 U.S.C. § 119							
 12) Acknowledgment is made of a claim for foreig a) All b) Some * c) None of: 1. Certified copies of the priority documer 2. Certified copies of the priority documer 3. Copies of the certified copies of the priority application from the International Burea * See the attached detailed Office action for a list 	nts have been received. Ints have been received in Applicationity documents have been received in Rule 17.2(a)).	ion No ed in this National Stage					
Attachment(s)	🗖 .						
1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)	4) Interview Summan Paper No(s)/Mail D						
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08 Paper No(s)/Mail Date 		Patent Application (PTO-152)					

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DETAILED OFFICE ACTION

1. Claims 1-23 are presented for examination.

- 2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103 (a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103(a).

3. Claims 1-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Voigt (Pat. No. 5,960,451) and Jacobson et al. (5,392,244) or Kirby (6,526,478), each taken separately.

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Voigt teaches the claimed "one or more hosts" as computer 22 and/or computers coupled to network 36. The claimed "plurality of data storage elements" correspond to memory 44, 42 and data storage system 24. The claimed "host network attachment" corresponds to circuitry inherently found in computer system 20 for connecting the memory to the network. The claimed "storage server/controller" corresponds to circuitry including RAID management system 56 and/or controllers 54a, 54b. The claimed "permanent data storage media" corresponds to non-volatile memory 44. The claimed "management information" corresponds to parameters/preferences such as physical capacity, number of storage disks, allocated capacity, characteristics of the RAID, percentage to be used (col. 2, line 55 – col. 3, line 2), performance (col. 4, line 16) and availability (col. 7, lines 26-42). The claimed "units of data" corresponds to the logical storage units (LUNs). The claimed function of "management information may be manipulated" corresponds to altering characteristics/parameters of the RAID or logical storage units (LUNs). However, the claimed "virtualization means for converting a storage request...to at least one data storage element..."

Jacobson is discussed in the Background of the Invention of Voight and teaches the claimed "virtualization means" as shown in the memory mapping scheme of figure 4. A physical storage space (i.e. disks 12, fig. 1) is mapped into a RAID level virtual storage space (i.e. virtual volume) which is then mapped into an application level virtual storage space (i.e. storage requests are first made to or from virtual blocks 50, col. 6, lines 50-52). Applicant should note the virtual storage space 40 and 50 could be considered to

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correspond to the claimed "virtual volume." Jacobson's memory mapping scheme enables improved memory access to the disk storage device.

Kirby teaches the claimed "virtualization means" as corresponding to array management module 52 shown in figure 2. Module 52 maps information from LUN 50 (virtual volume) to disks 26. Kirby's mapping scheme increase input/output performance of the system.

Because memory mapping from a virtual storage space to a physical storage space provides improved I/O memory performance, it would have been obvious to use Jacobson's or Kirby's memory mapping scheme in Voight to improve I/O performance. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art.

The examiner believes most, if-not-all, dependent claim features are taught by Voight, Kirby or Jacobson et al. For example, in claim 3, the claimed step of "allowing the location of the manipulation of management information to be changed..." corresponds to moving the parameters/preferences discussed in Voight. However, in the event a claim feature(s) is not inherent applicant should consider the claim feature(s) in light of the Official notification put forth below. Official notice is taken of the prior art teaching any claim feature not specifically discussed above. That is, any prior art (including that of record) teaching the more well known claim features commonly found in the dependent claims. The claim features, while part of the invention, appear to be well known and their relevance not essential to the main invention found in the

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independent claim(s). Thus, a detailed discussion of the well known claim features is not warranted at this time. Applicant is invited to comment on any claim feature(s) deemed to be patentably distinguishable from the prior art.

- 4. Applicant's amendment necessitated the new grounds of rejection. Accordingly, THIS ACTION IS MADE FINAL. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).
- A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Any response to this final action should be mailed to: Box AF

Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office

PO Box 1450

Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306, (for Official communications intended for entry)

Or:

(703) 872-9306, (for Non-Official or Draft communications, please label "Non-Official" or "DRAFT")

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack A. Lane whose telephone number is 703 305-3818. The examiner can normally be reached on Mon-Fri from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 703 306-2903.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

PRIMARY EXAMINER